

# Crisis Management Research Activities: Example of Volcanic Ash

Ružica Vujasinović

DLR – Institute of Flight Guidance

*University of Belgrade*

*Faculty of Transportation and Traffic Engineering*

*December, 2014*

*Belgrade*



Knowledge for Tomorrow



# Crisis Management Research Activities: Example of Volcanic Ash

- What is DLR?
  - DLR in Braunschweig: Institute of Flight Guidance
- Crisis Management Activities
  - Example of Volcanic Ash



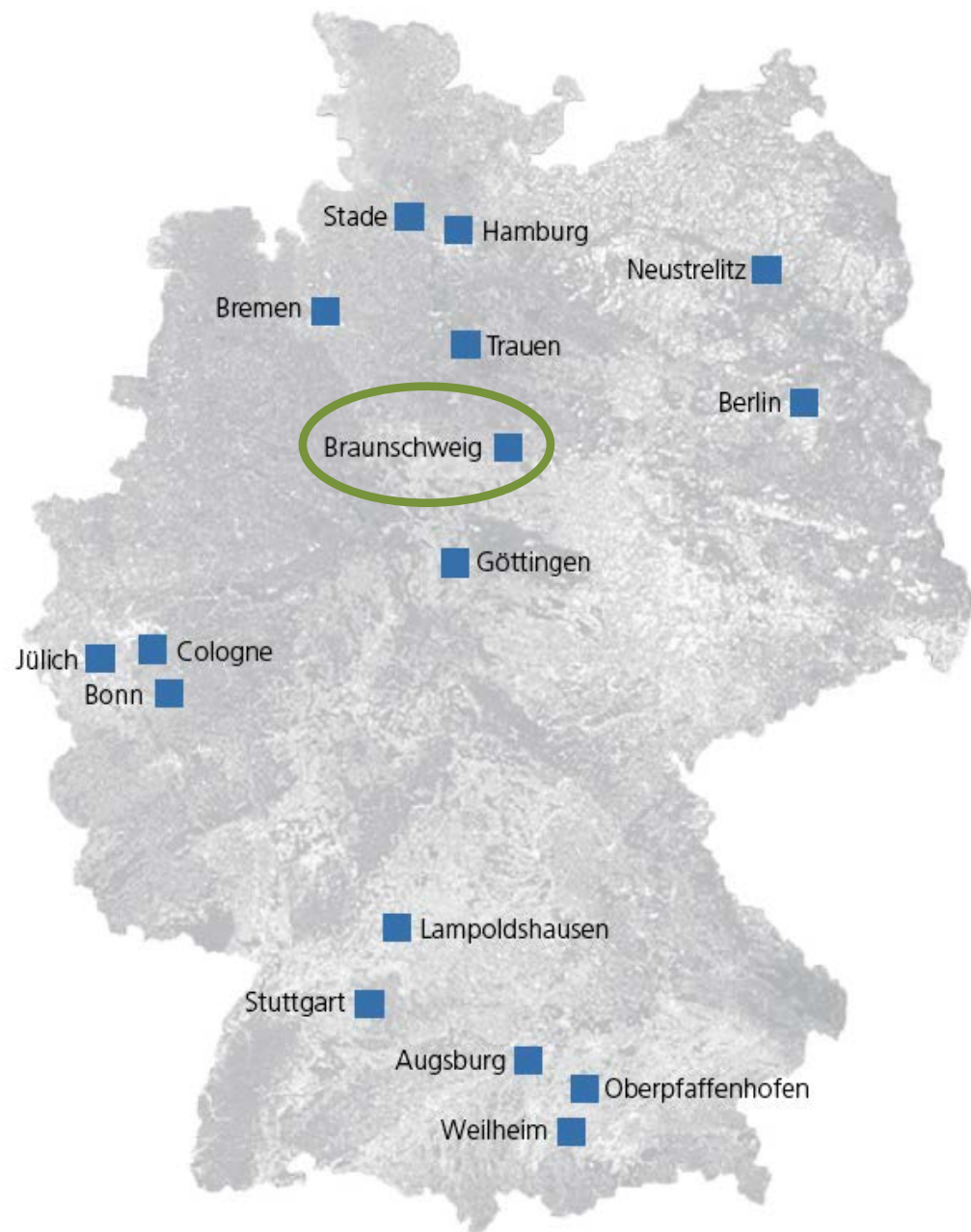
# What is DLR? (1)

- DLR
  - Deutsches Zentrum für Luft- und Raumfahrt
  - German Aerospace Center
- 1907 foundation of the first research Institute in Göttingen → 1963 bringing research institutions together → 1989 German Research Institute for Aviation and Spaceflight → 1997 merging with German Agency for Spaceflight Affairs
- Research Institution
- Space Agency
- Project Management Agency



# What is DLR?(2)

- Locations and Employees
  - 8.000 employees across 32 Institutes and facilities at 16 locations in Germany
  - Offices in Brussels, Paris, Washington DC and Tokyo





# DLR in Braunschweig (1)



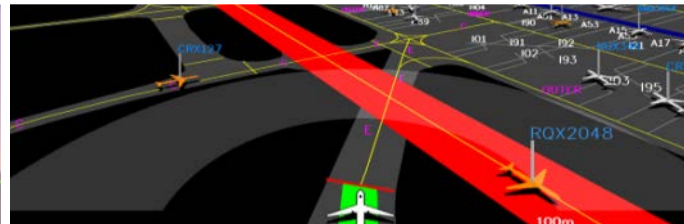
## DLR in Braunschweig (2)

- DLR - Institute of Aerodynamics and Flow Technology
- DLR - Institute of Composite Structures and Adaptive Systems
- **DLR - Institute of Flight Guidance**
- DLR - Institute of Air Transport and Airport Research
- DLR - Institute of Flight Systems
- DLR - Institute of Transportation Systems
- DLR - Simulations and Software Technology
- + DLR – Flight experiments + DLR\_School\_Lab





# DLR – Institute of Flight Guidance (1)



# DLR – Institute of Flight Guidance (2)

AT-One EWIV



Head of the Institute  
Prof. Dr.-Ing. Dirk Kügler

Management Support  
& AT-One  
Dipl.-Ing. Kurt Klein

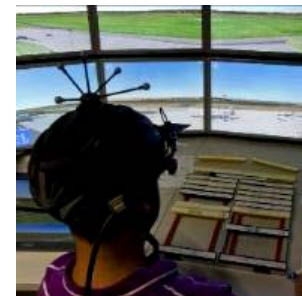
Air Transportation  
Dr.-Ing. Michael Schultz

Controller Assistance  
Dipl.-Ing. Jürgen Rataj

Pilot Assistance  
Dr.-Ing. Bernd Korn

ATM-Simulation  
Dipl.-Ing. Sven Kaltenhäuser

Human Factors  
Marcus Biella (Ag.)

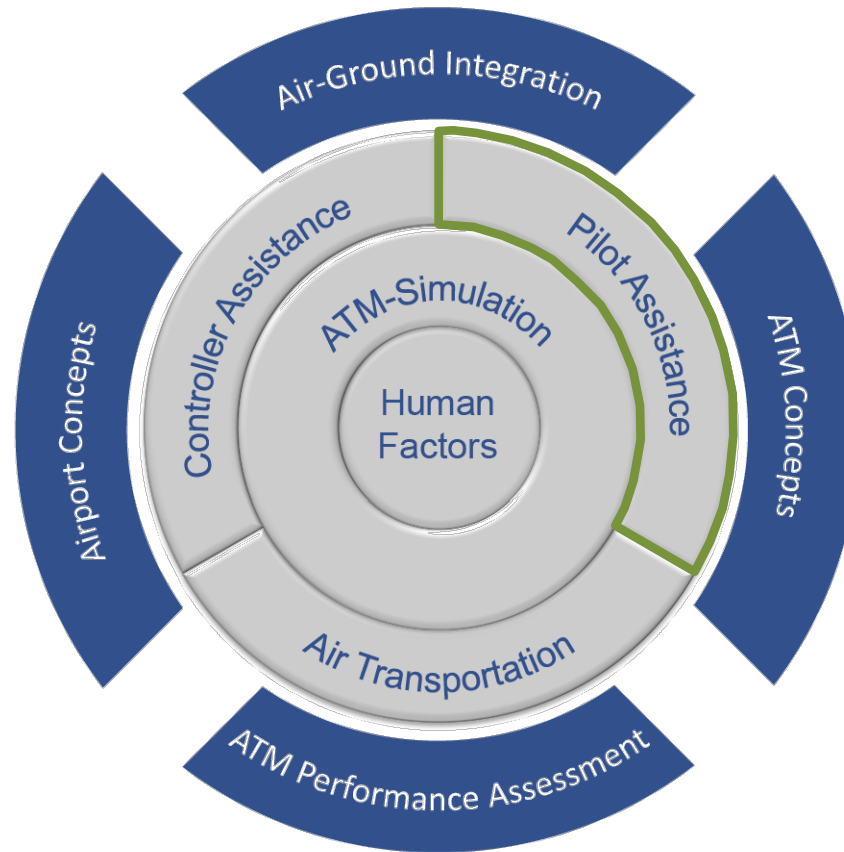


- Around 145 employees contribute to the institute's work, 60% of these are scientists





# DLR – Institute of Flight Guidance (3)



# DLR – Institute of Flight Guidance

## Crisis Management Activities – Volcanic Ash (1)

- DLR's Institute of Flight Guidance is the only R&D institution actively participating in:
  - VOLCEX - ICAO's Volcanic Ash Exercise for EUR and NAT Regions (since November 2011)
  - VOLKAM - ICAO's Volcanic Ash Exercise for the (far) eastern part of the EUR Region (since July 2014)
- What are VOLCEX and VOLKAM?
  - VOLCEX (since 2008) and VOLKAM (since 2013) are ICAO's volcanic ash exercises held annually or bi-annually in the EUR (including far eastern part) and NAT Regions
  - The objective is to exercise volcanic activity alerting, AIS and MET message routing, volcanic ash dispersion forecast, air traffic control, air traffic flow and capacity management and aircraft operator response in the regions



# DLR – Institute of Flight Guidance

## Crisis Management Activities – Volcanic Ash (2)

- What is our goal in these activities?
  - To promote the flight guidance concept for volcanic ash events which emphasizes the need to transfer a role of the decision-maker from National Aviation Authorities (NAAs) to the airline and finally to the pilot
  - This concept also emphasizes the need:
    - to observe a volcanic ash problem as “adverse weather”
    - of an improved volcanic ash information (forecast and now-cast) for all end users
    - of enhanced support for in-flight decision making (in-flight optimization of flight, graphical display in cockpit)
    - of enhanced support for ATC decision making (optimization of air traffic, coordination of the individual optimized flights)
  - General idea: in the difficult situation (such as volcanic ash in the air) efficiency of air traffic is more important than efficiency of the individual flight





# DLR – Institute of Flight Guidance

## Crisis Management Activities – Volcanic Ash (3)

Research



Concept development



Evaluation, Validation



Consulting



# DLR – Institute of Flight Guidance

## Crisis Management Activities – Volcanic Ash (4)





**Ružica Vujasinović**  
[ruzica.vujasinovic@dlr.de](mailto:ruzica.vujasinovic@dlr.de)

